

FIG. 1

2
$$\frac{1}{3}$$
 + Cu(CH₃CN)₄PF₆ $\frac{Acetonitrile/Et D}{70\%}$ $\frac{N}{2}$ $\frac{$



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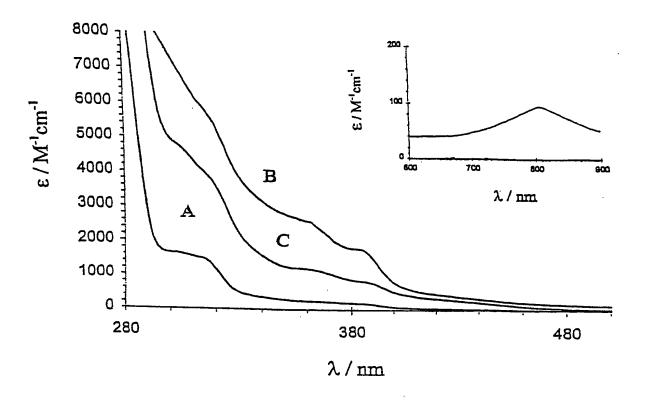


FIG. 3





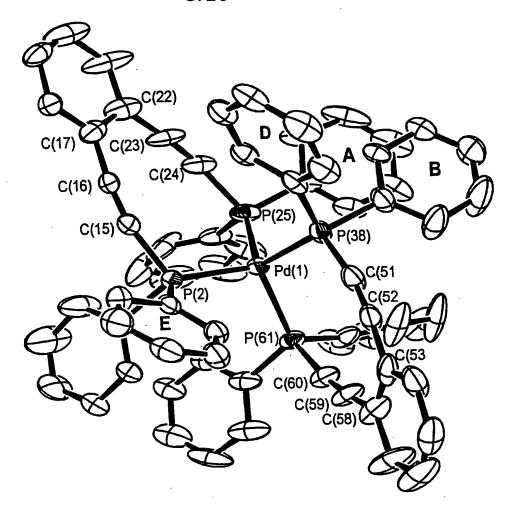


FIG. 4A

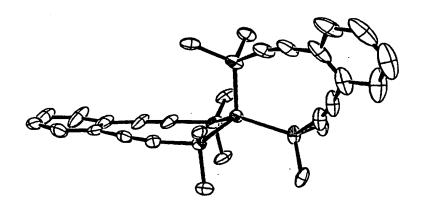


FIG. 4B



FIG. 5A





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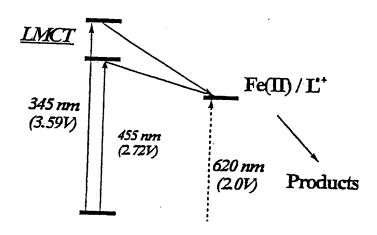


FIG. 6

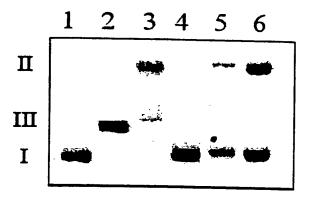


FIG. 7

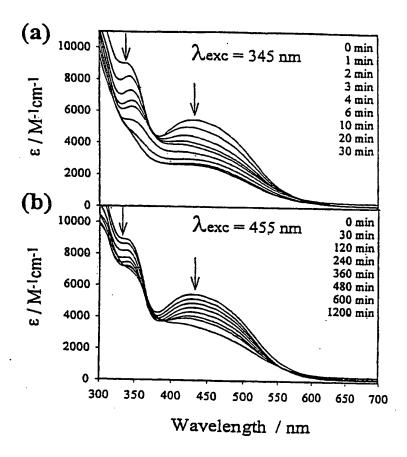
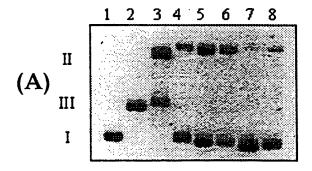


FIG. 8
SUBSTITUTE SHEET (RULE 26)



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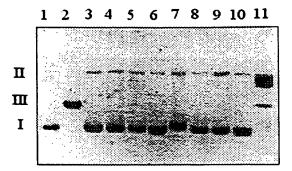
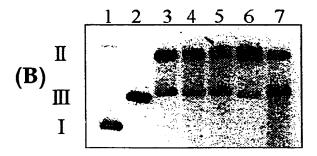


FIG. 10



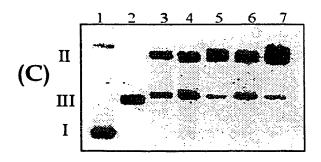


FIG. 9



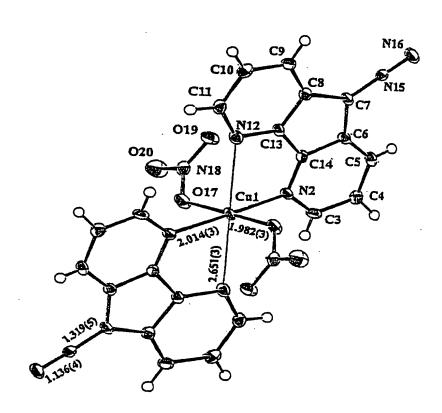
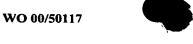


FIG. 11

FIG. 12

P-P=dppe, dppy, dppb, dcpe



M=Ni,Cu





$$Ru(bpy)_{2}Cl_{2} + 2 Ag(CF_{3})SO_{3} \xrightarrow{CH_{3}CN} Ru(bpy)_{2}(CH_{3}CN)_{2}((CF_{3})SO_{3})_{2} + 2 AgCI$$

$$PPh_{2}$$

$$Ru(bpy)_{2}(CH_{3}CN)_{2}((CF_{3})SO_{3})_{2} + Ru(bpy)_{2}ED((CF_{3})SO_{3})_{2}$$

$$Ru(bpy)_{2}(CH_{3}CN)_{2}((CF_{3})SO_{3})_{2} + Ru(bpy)_{2}ED((CF_{3})SO_{3})_{2}$$

FIG. 13

2 +
$$Pd(PPH_3)_2Cl_2$$
 $\frac{1) C_6H_6 / 60 °C}{2) N_2H_4}$ Ph_2 Ph_2

FIG. 14